

Appendix B

Meteorological Data

This section contains meteorological data derived from various regulatory and non-regulatory sites. The data provides a comparative analysis of winds speed, wind direction, wind gusts and concentration data. Please note that meteorological instruments measure at different heights, and at different time intervals. By taking, the actual time of measurement and assuring that all data represented is in Pacific Standard Time (PST) there is uniformity of the data. In addition, not all stations measure at the exact same time, i.e. measurements at 053 and 056 therefore, comparisons are measurements within a 60-minute period. While there may be some overlapping and slight differences the comparative analysis provides the reader with a better understanding of the regional effect of the Exceptional Event.

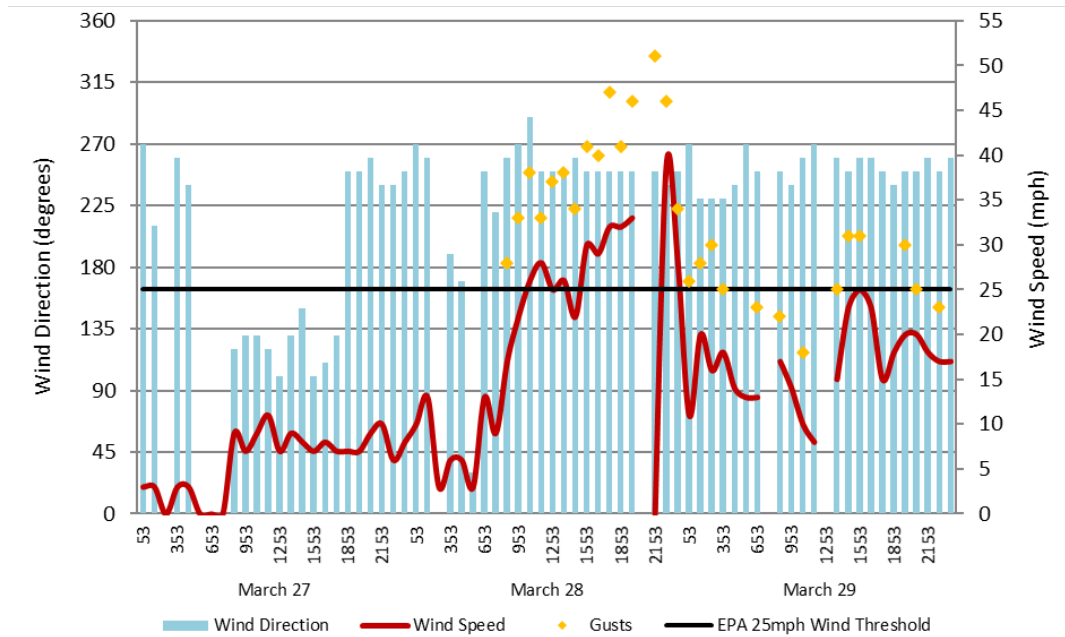
FIGURE B-1
POTENTIAL METEOROLOGICAL SITES USED IN EXCEPTIONAL EVENT DOCUMENTS



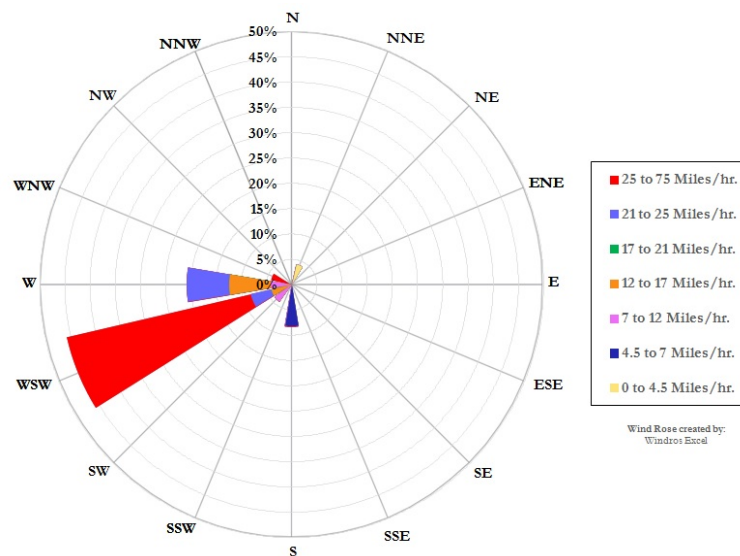
Fig B-1: Depicts all the sites from which the ICAPCD may access meteorological data. Base map and larger locator map from Google Earth

**IMPERIAL COUNTY SITES
B-2 THROUGH B-9**

**FIGURE B-2
IMPERIAL COUNTY AIRPORT (KIPL)
WIND SPEED, GUSTS & DIRECTION**



**FIGURE B-3
KIPL WIND ROSE – MARCH 28**



Figs B-2 & B-3: Imperial Airport (KIPL) meteorological data shows that both winds and gusts exceeded the 25 mph wind threshold. Data from the NCEI's QCLCD system

FIGURE B-4
EL CENTRO NAF (KNJK)
WIND SPEED, GUSTS & DIRECTION

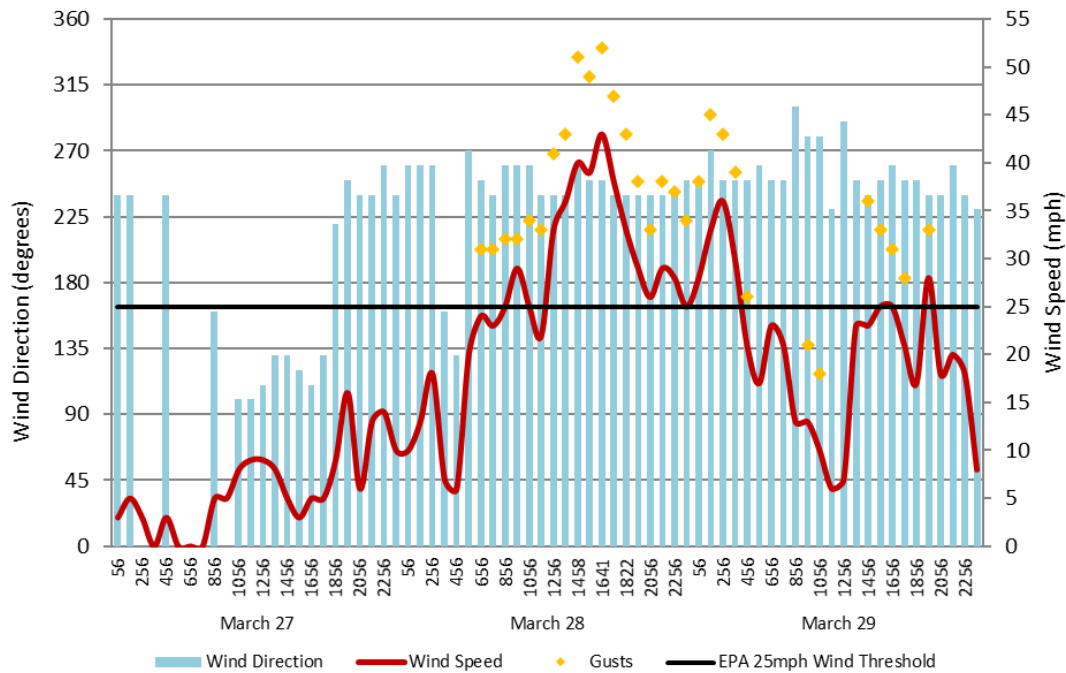
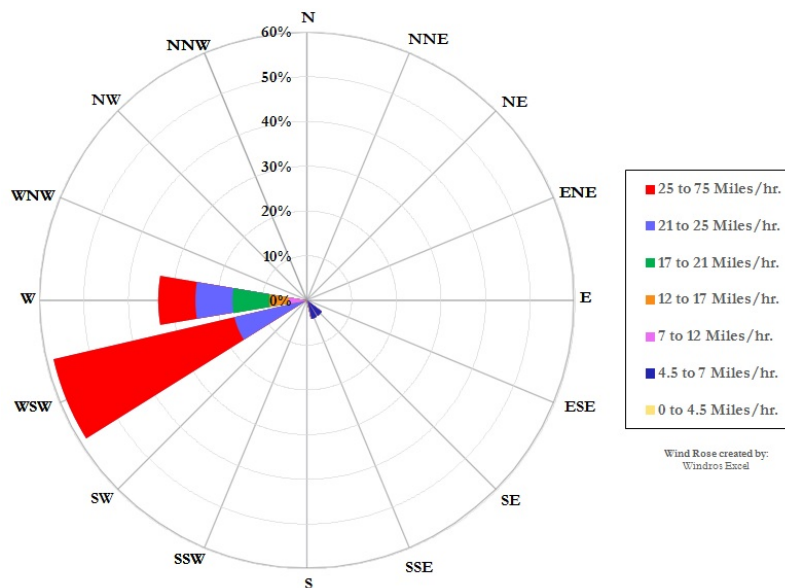
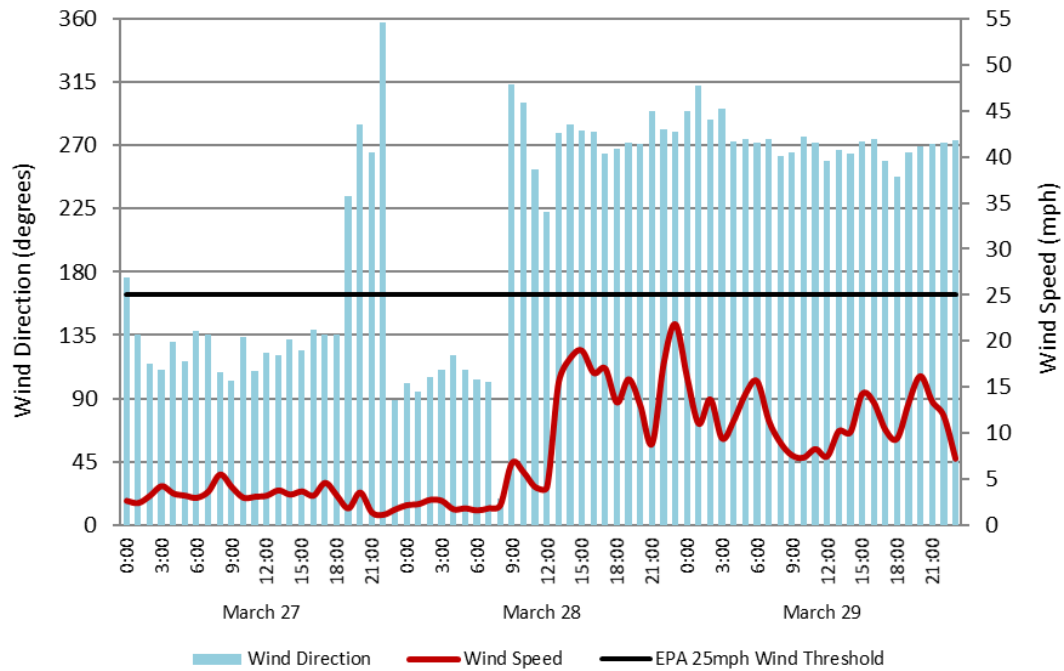


FIGURE B-5
KNJK WIND ROSE – MARCH 28

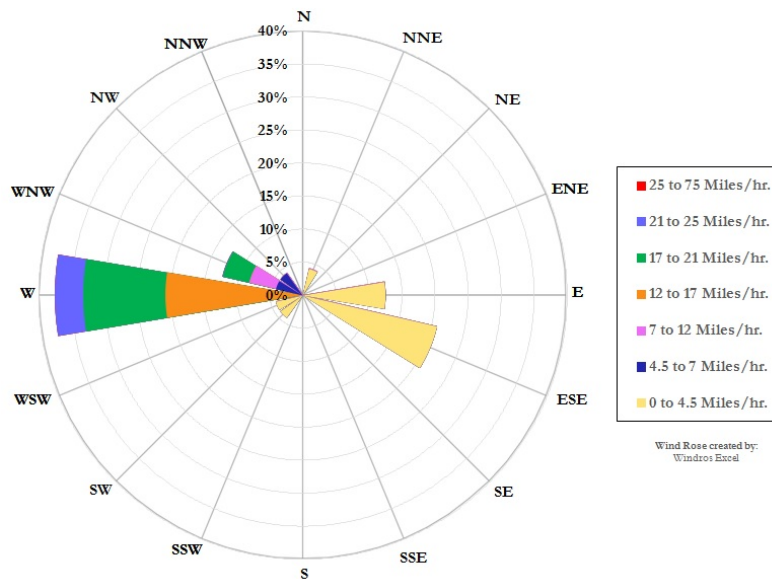


Figs B-4 & B-5: El Centro NAF (KNJK) meteorological data shows that both winds and gusts exceeded the 25 mph wind threshold. Data from the NCEI's QCLCD system

**FIGURE B-6
CALEXICO
WIND SPEED & DIRECTION**

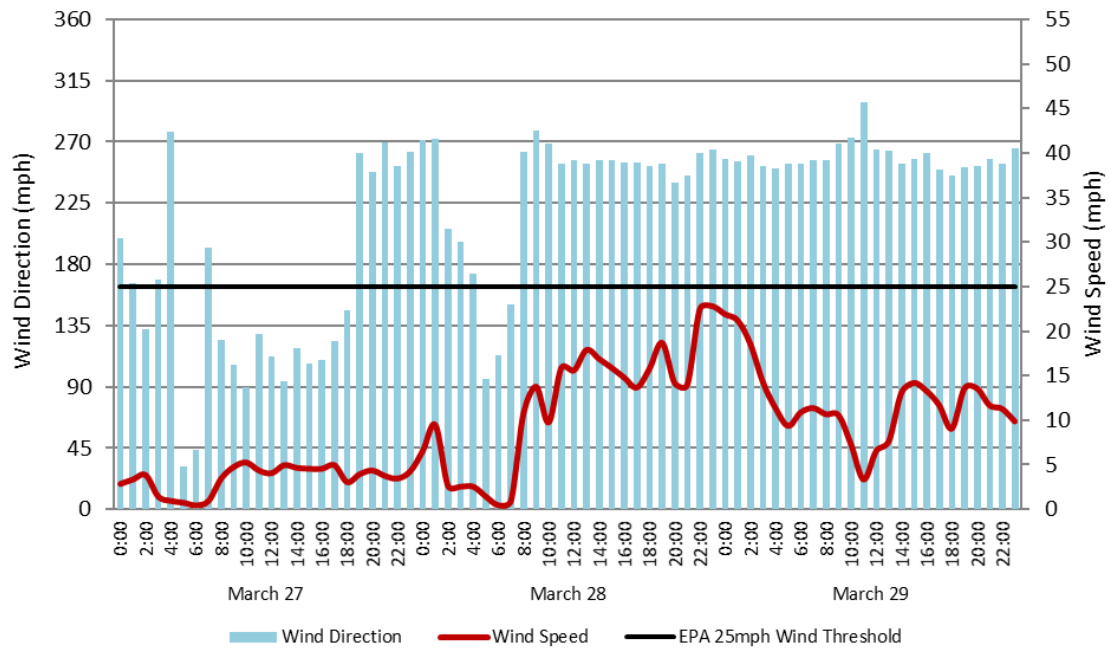


**FIGURE B-7
CALEXICO WIND ROSE – MARCH 28, 2016**

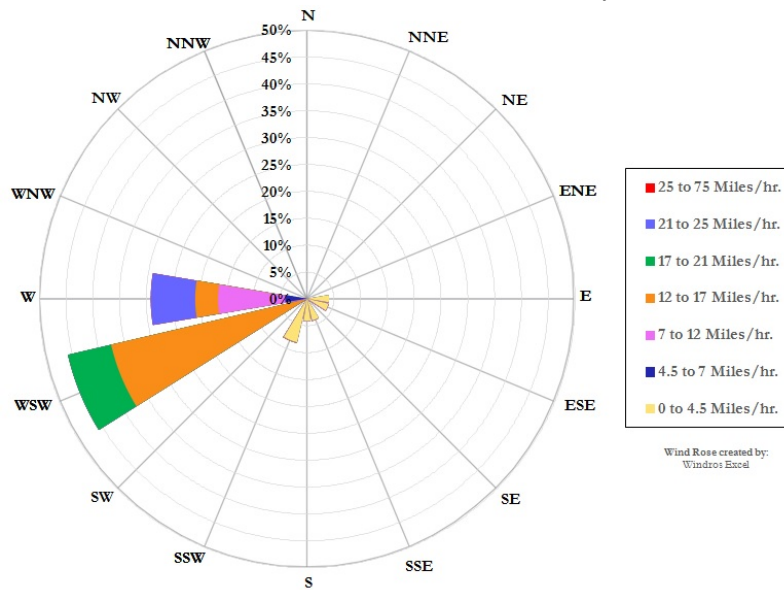


Figs B-6 & B-7: Winds at Calexico came close to exceeding the 25 mph wind threshold. Data from the EPA's AQS system

**FIGURE B-8
EL CENTRO
WIND SPEED & DIRECTION**



**FIGURE B-9
EL CENTRO WIND ROSE – MARCH 28, 2016**



Figs B-8 & B-9: Winds at Calexico came close to exceeding the 25 mph wind threshold. Data from the EPA's AQS system

FIGURE B-10
NILAND WIND SPEED & DIRECTION

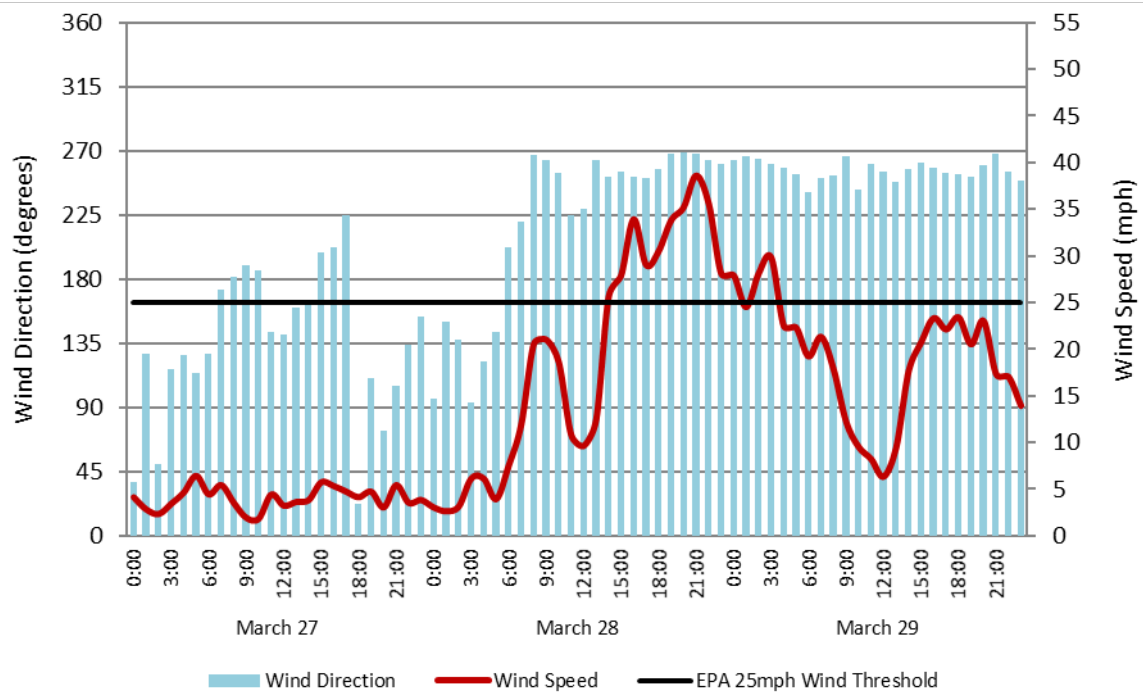
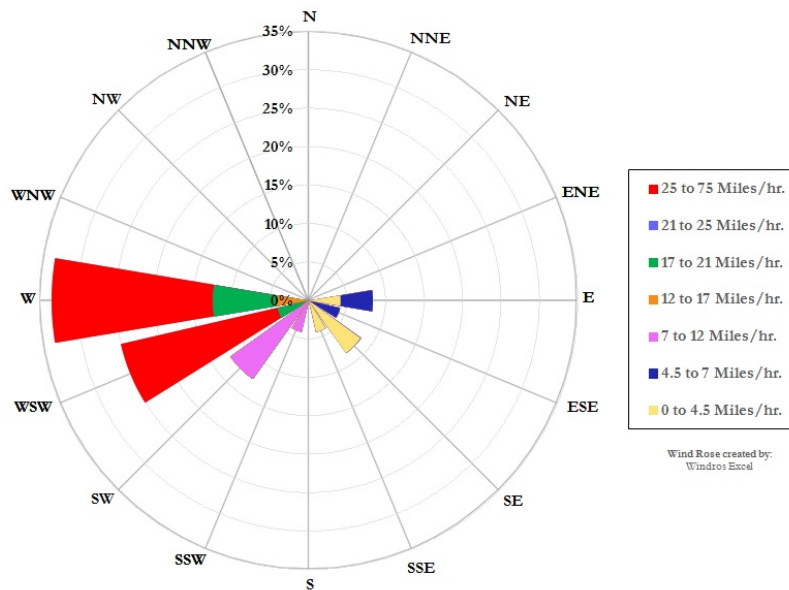


FIGURE B-11
NILAND WIND ROSE – MARCH 28, 2016



Figs B-10 & B-11: Winds exceeded the 25 mph wind threshold at Niland. Data from the EPA's AQS system

FIGURE B-12
WESTMORLAND
WIND SPEED & DIRECTION

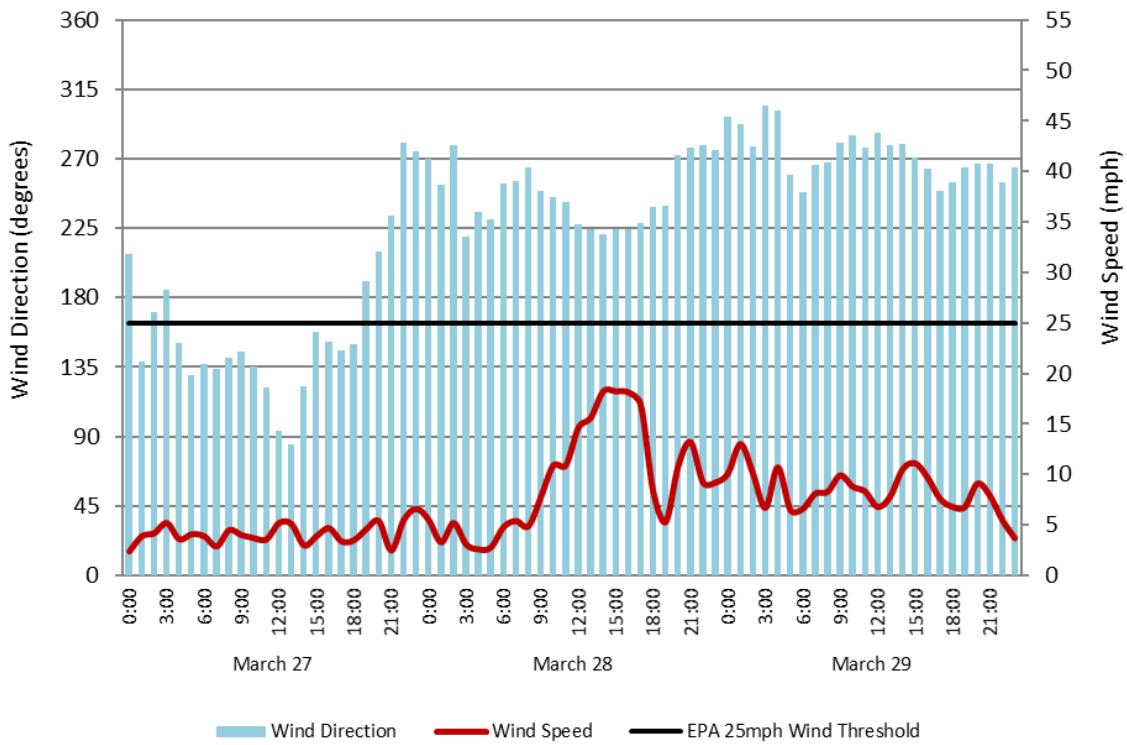
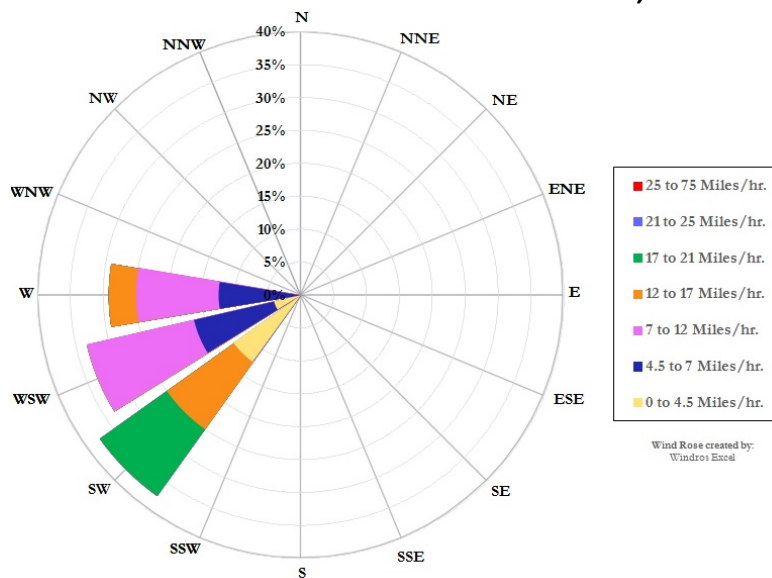


FIGURE B-13
WESTMORLAND WIND ROSE – MARCH 28, 2016



Figs B-12 & B-13: Winds did not exceed the 25 mph wind threshold at Westmorland. However, winds were much higher at upstream sites and transported dust downstream. Data from the EPA's AQS system

EASTERN RIVERSIDE COUNTY AIRPORTS

FIGURE B-14
BLYTHE AIRPORT (KBLH)
WIND SPEED, GUSTS & DIRECTION

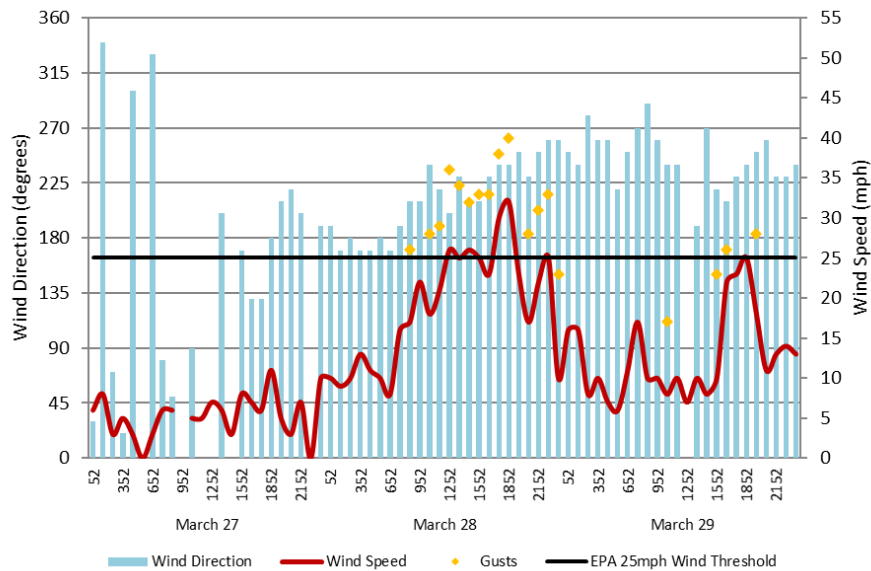


Fig B-14: Winds and gusts exceeded the 25 mph wind threshold at KBLH, which supports the regional nature of the event. Data from the NCEI's QCLCD system

FIGURE B-15
DESERT RESORTS (aka J.COCHRAN-THERMAL) AIRPORT (KTRM)
WIND SPEED, GUSTS & DIRECTION

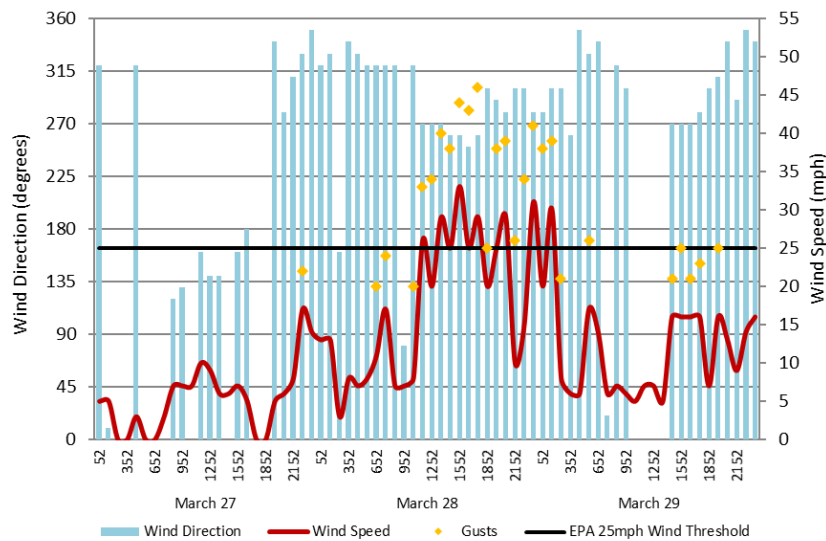


Fig B-15: Winds and gusts exceeded the 25 mph wind threshold at KTRM, which supports the regional nature of the event. Data from the NCEI's QCLCD system

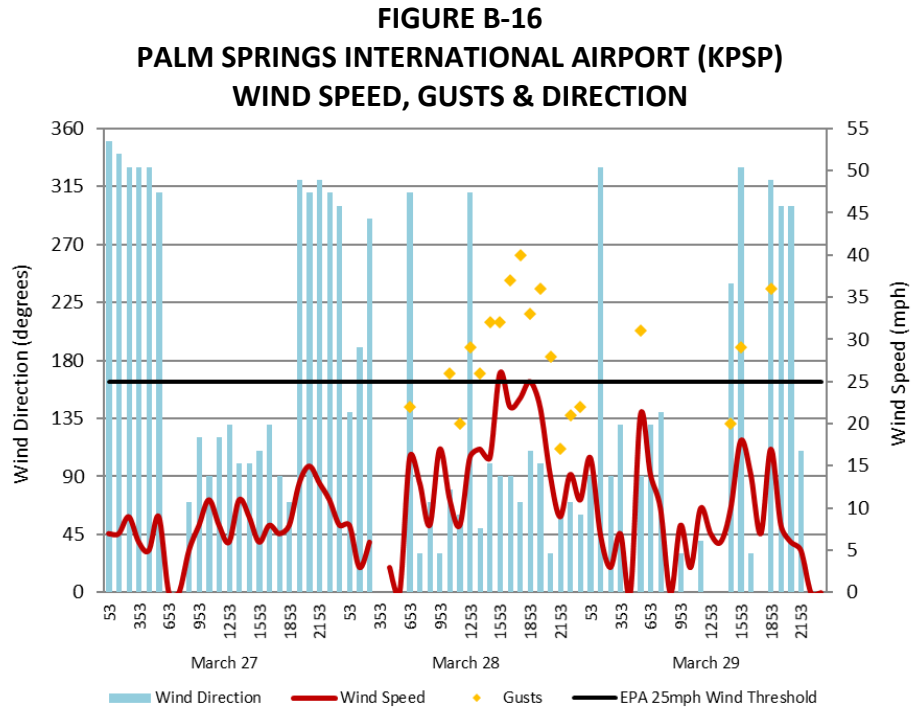


Fig B-16: Winds and gusts exceeded the 25 mph wind threshold at KPSP, which supports the regional nature of the event. Data from the NCEI's QCLCD system

SOUTHEASTERN SAN DIEGO COUNTY

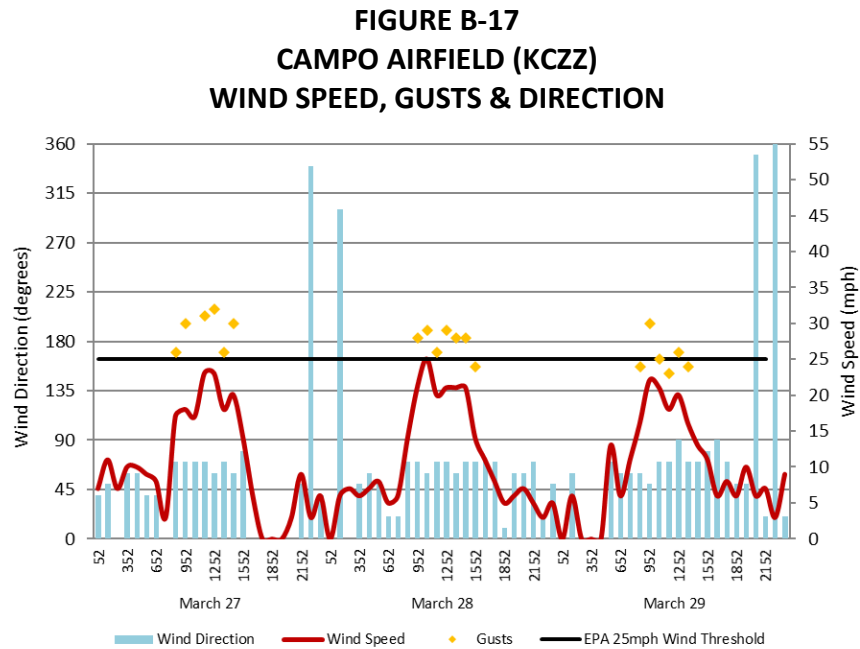


Fig B-17: Winds and gusts exceeded the 25 mph wind threshold at KPSP, which supports the regional nature of the event. Data from the NCEI's QCLCD system

SOUTHWESTERN ARIZONA

FIGURE B-18
YUMA, ARIZONA MCAS (KNYL)
WIND SPEED, GUSTS & DIRECTION

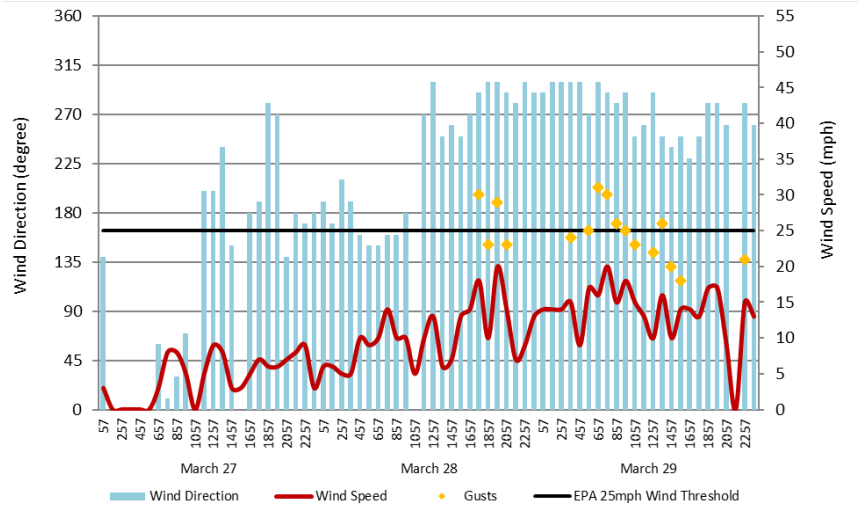


Fig B-18: Winds and gusts exceeded the 25 mph wind threshold at KNYL, which supports the regional nature of the event. Data from the NCEI's QCLCD system

MEXICO

FIGURE B-19
MEXICALI, MEXICO (MMML)
WIND SPEED & DIRECTION

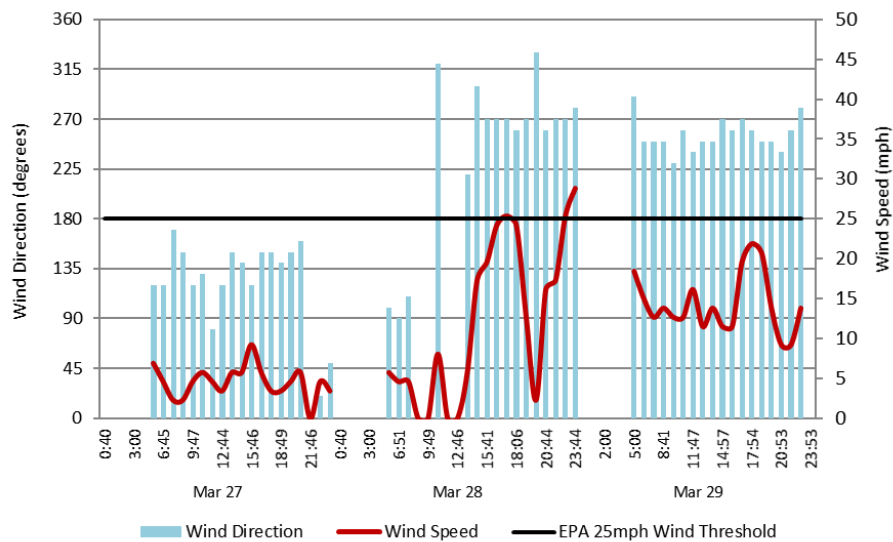


Fig B-19: Winds exceeded the 25 mph wind threshold at MMML, which supports the regional nature of the event. Data from the University of Utah's MesoWest system

UPSTREAM SITES

FIGURE B-20
MOUNTAIN SPRINGS GRADE
WIND SPEED & DIRECTION

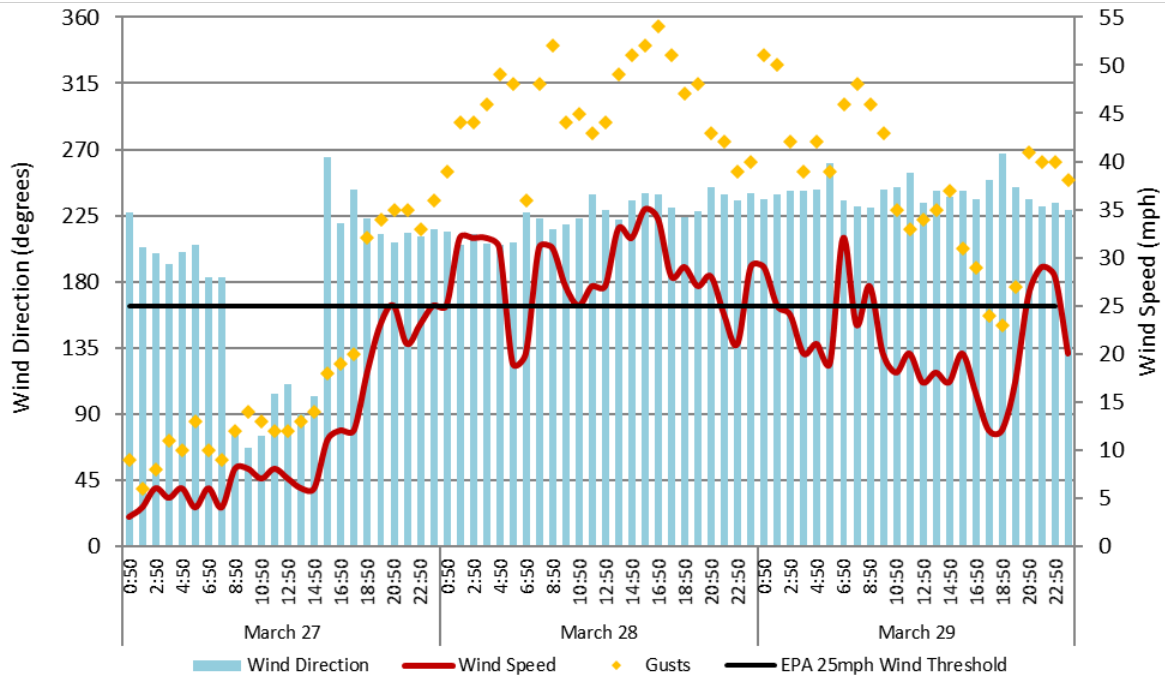
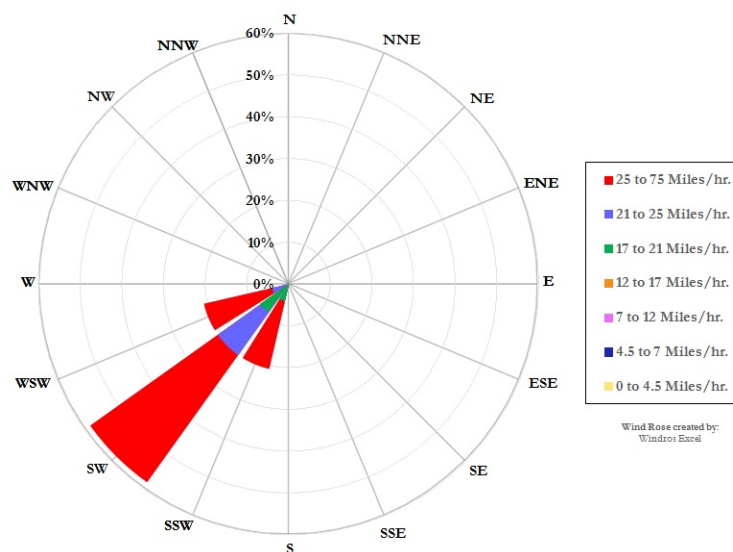


FIGURE B-21
MOUNTAIN SPRINGS GRADE WIND ROSE – MARCH 28, 2016



Figs B-20 & B-21: Winds and gusts exceeded by a wide margin the 25 mph wind threshold at Mountain Springs Grade (TNSC1) located at 2,044 ft elevation on the desert slopes. Data from the University of Utah's MesoWest

FIGURE B-22
SUNRISE-OCOTILLO
WIND SPEED, GUSTS & DIRECTION

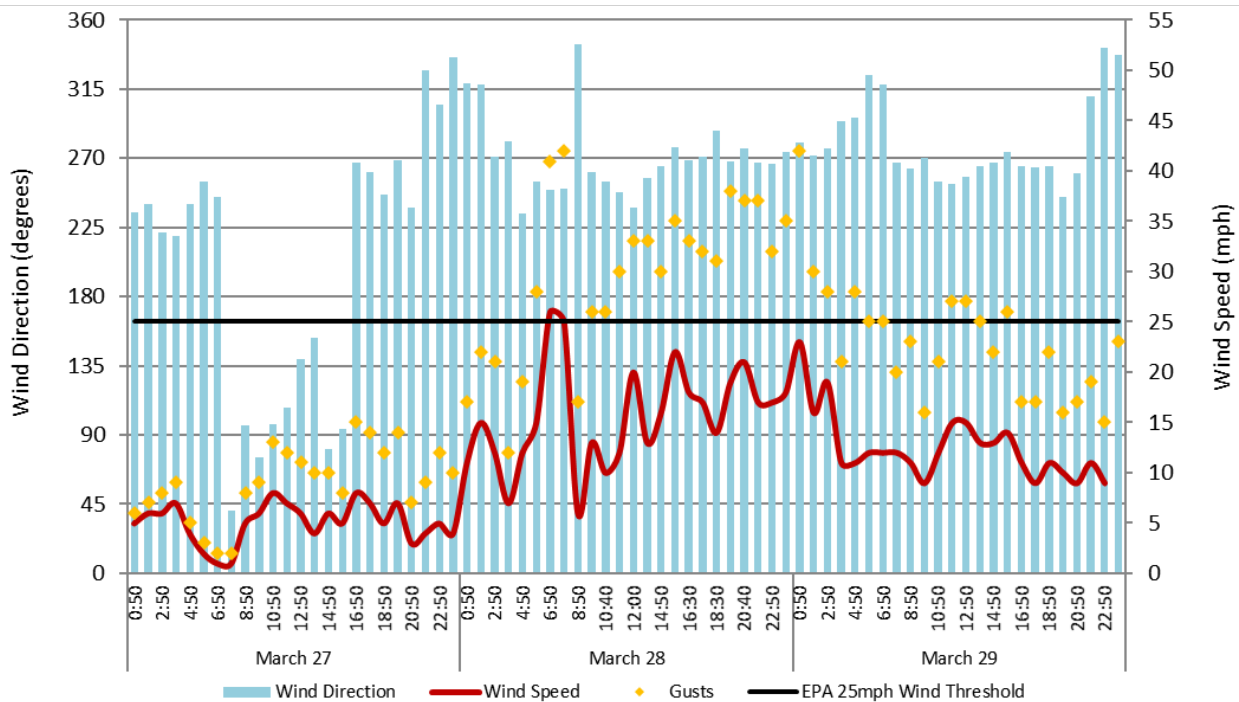
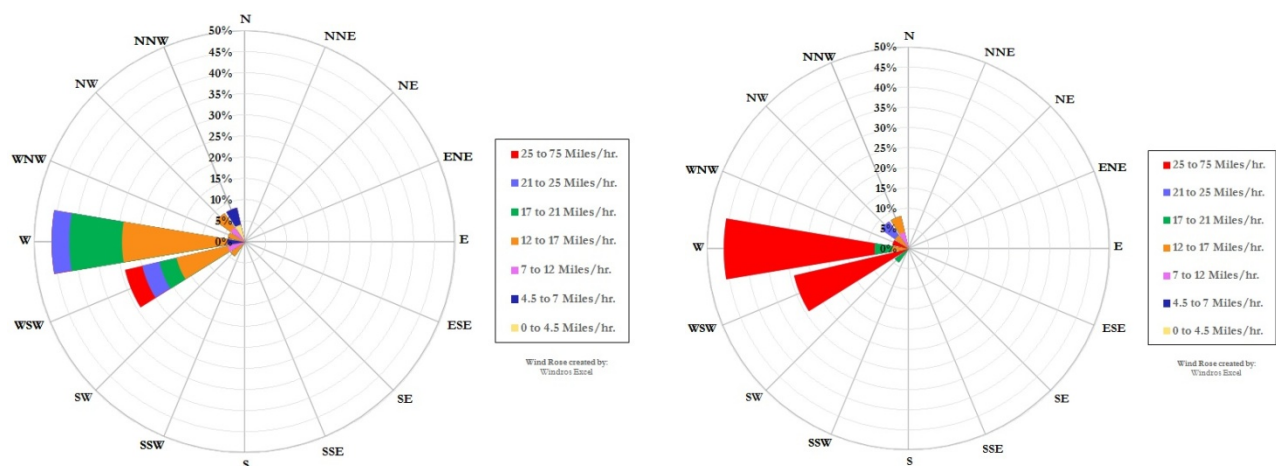


FIGURE B-23 & B-24
SUNRISE OCOTILLO WIND ROSE – MARCH 28, 2016



Figs B-22 & B-23 & B-24: Winds and gusts exceeded briefly the 25 mph wind threshold at Sunrise-Ocotillo (Station ID: IMPSD) located at 695 ft elevation near the desert floor. The wind roses show winds (left) and gusts (right). Gusts played an important role in suspending and transporting dust. Data from the University of Utah's MesoWest

FIGURE B-25
FISH CREEK MOUNTAINS
WIND SPEED, GUSTS & DIRECTION

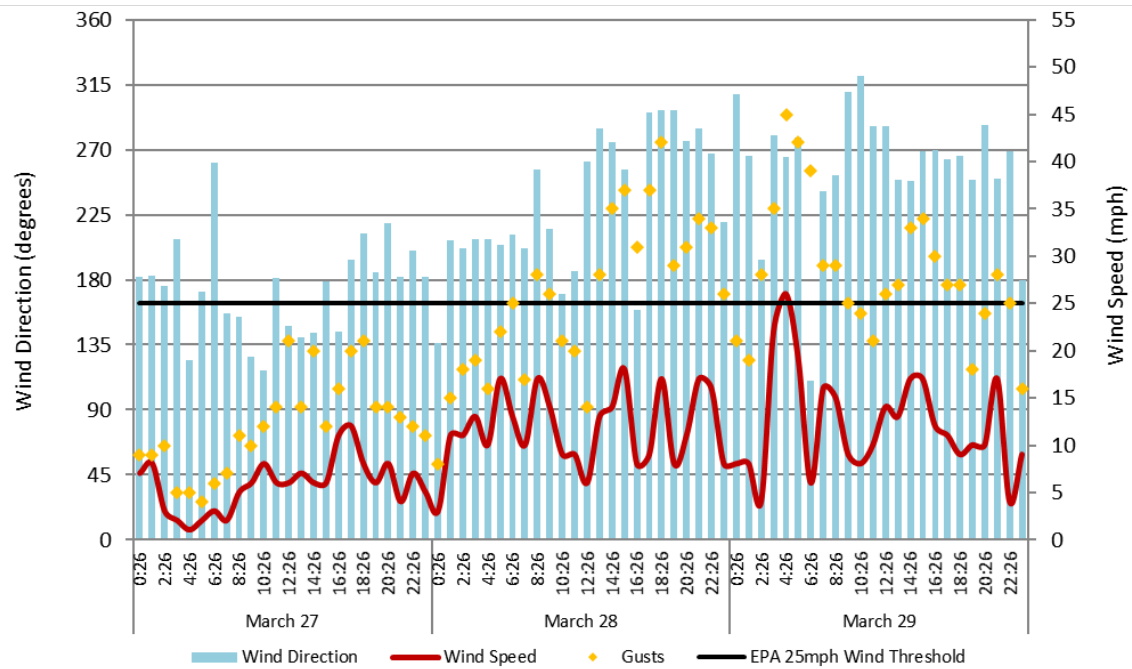
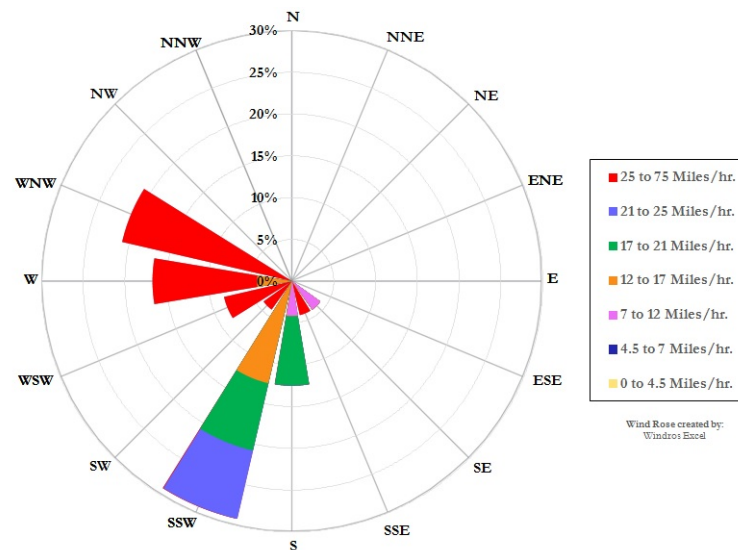


FIGURE B-26
FISH CREEK MTNS. WIND ROSE (GUSTS ONLY) – MARCH 28, 2016



Figs B-25 & B-26: Winds did not exceed the 25 mph wind threshold, although gusts did. The gusty winds helped transport downstream dust that was suspended in the air. FCM is at Sunrise-Ocotillo located at 781 ft elevation near the desert floor. Wind rose shows gusts only. Data from the University of Utah's MesoWest

FIGURE B-27
NAVAL TEST BASE
WIND SPEED & DIRECTION

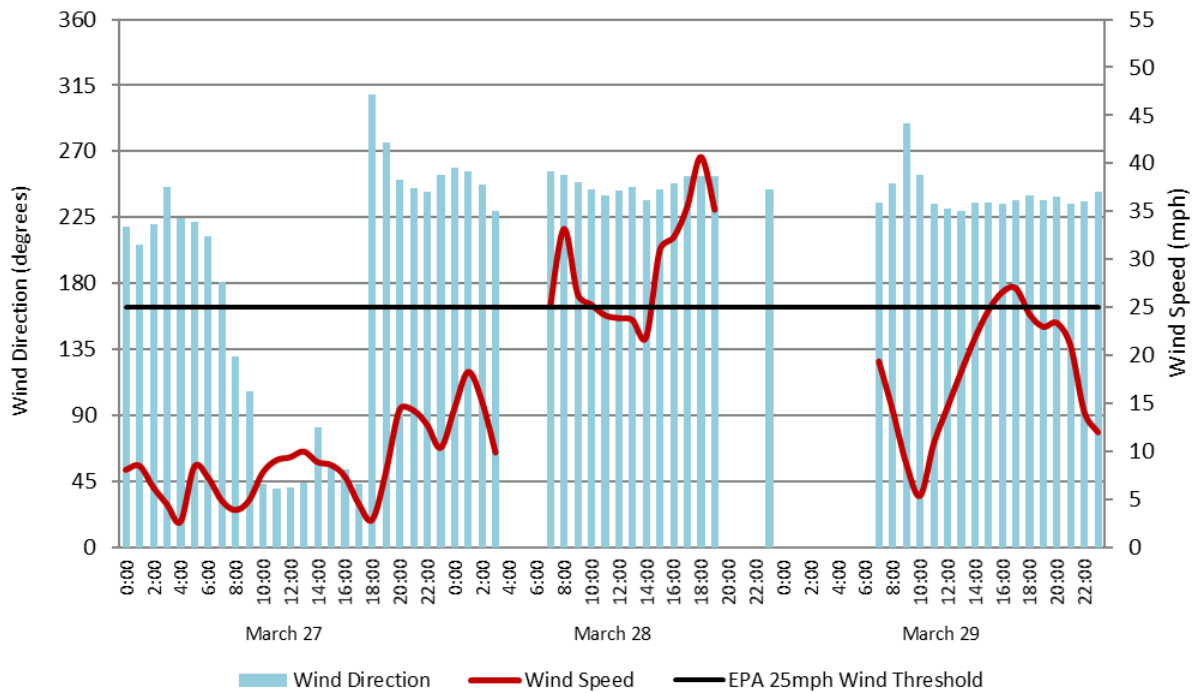
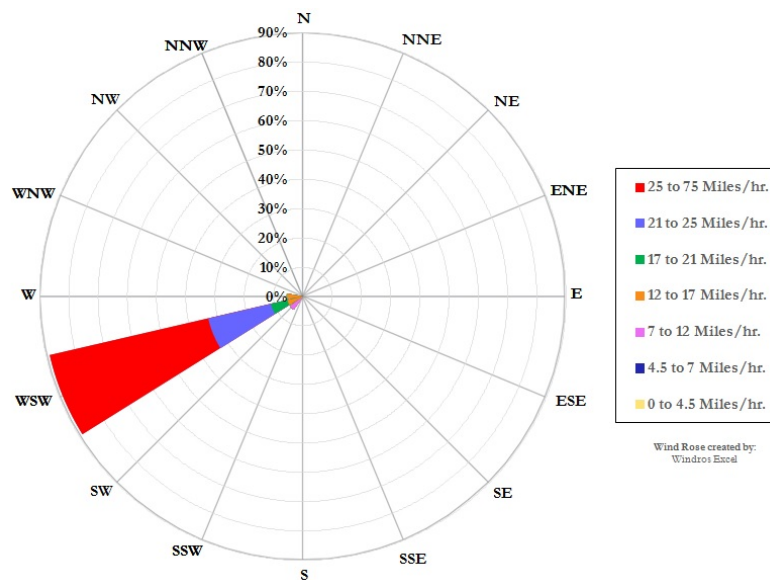


FIGURE B-28
NAVAL TEST BASE – MARCH 28, 2016



Figs B-27 & B-28: Winds exceeded by a wide margin the 25 mph wind threshold at the former Naval Test Base that was directly upstream from Niland station. Data from AQMIS

FIGURE B-29 EL CENTRO NAF (KNJK) QCLCD DATA

U.S. Department of Commerce National Oceanic & Atmospheric Administration National Environmental Satellite, Data, and Information Service Elev: -42 ft, Lat: 32.81617° N, Long: -115.68337° W Station: EL CENTRO NAF, CA US WBAR-23199					Local Climatological Data Hourly Observations March 2016 Generated on 05/19/2017										National Centers for Environmental Information 151 Patton Avenue Asheville, North Carolina 28801								
Date	Time (LST)	Station Type	Sky Conditions	Visi- bility	Weather Type (see documentation)	AU AW MW	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Hum %	Wind Speed (MPH)	Wind Dir (Deg)	Wind Gusts (MPH)	Station Press (inHg)	Press. Tend.	Net 3-Hr Change (inHg)	Sea Level Press. (inHg)	Report Type	Precip Total (in)	Altimeter Setting (inHg)
							(F)	(C)	(F)	(C)	(F)	(C)											
28	0056	7	CLR-00	10.00			65	18.3	56	13.5	34	1.1	32	10	260	29.89			29.89	FW-15	0.00	29.85	
28	0156	7	CLR-00	10.00			68	20.0	59	15.1	36	2.2	31	13	260	29.87			29.87	FW-15	0.00	29.83	
28	0256	7	CLR-00	10.00			69	20.6	61	15.6	34	1.1	27	18	260	29.86			29.86	FW-15	0.00	29.82	
28	0356	7	CLR-00	10.00			66	18.9	57	13.9	36	3.3	36	7	160	29.85	6	+0.04	29.85	FW-15	T	29.81	
28	0456	7	SCT-04 280	10.00			59	15.0	53	11.8	48	8.9	67	6	130	29.85			29.85	FW-15	0.00	29.81	
28	0522	7	SCT-04 280	10.00			66	18.9	57	14.0	36	2.2	33	16	260	29.85				FW-16		29.81	
28	0556	7	FEW-02 70 FEW-02 280	10.00			67	19.4	58	14.5	37	2.8	33	20	270	29.87			29.87	FW-15	0.00	29.83	
28	0656	7	FEW-02 70 FEW-02 280	4.00	H2-7 (F)U-05 (H)Z-05		68	20.0	59	14.9	43	6.1	40	24	250	31	29.87	3	-0.02	29.87	FW-15	T	29.83
28	0756	7	FEW-02 70 SCT-04 280	5.00	DUS JDU-07		70	21.1	61	15.9	46	7.8	42	23	240	31	29.88			29.88	FW-15	0.00	29.84
28	0856	7	FEW-02 70 SCT-04 280	10.00			72	22.2	62	16.9	43	6.1	35	25	260	32	29.89			29.89	FW-15	0.00	29.85
28	0956	7	FEW-02 70 BKN-07 280 BKN-07 280	10.00			70	21.1	61	15.8	43	6.1	38	29	260	32	29.88	0	-0.01	29.88	FW-15	0.00	29.84
28	1056	7	FEW-02 70 BKN-07 280 BKN-07 280	8.00			72	22.2	62	16.9	42	5.6	34	25	260	34	29.89			29.89	FW-15	0.00	29.85
28	1156	7	FEW-02 70 FEW-02 200 SCT-04 280	8.00			78	25.6	70	21.2	37	2.8	23	22	240	33	29.84			29.85	FW-15	0.00	29.80
28	1256	7	FEW-02 200 SCT-04 280	3.00	DUS JDU-07		78	25.6	72	22.0	33	0.6	19	33	240	41	29.81	8	+0.07	29.82	FW-15	0.00	29.77
28	1336	7	FEW-02 200 FEW-02 280	1.50	DUS JDU-07		77	25.0	70	21.3	33	0.6	20	32	240	49	29.80				FW-16		29.76
28	1354	6	FEW-02 200 FEW-02 280	7.00	DS-5 JDU-31		77	25.0	70	21.1	34	1.0	21	36	240	43	29.80				FW-16		29.76
28	1356	7	FEW-02 200 FEW-02 280	0.50	+DS-5 JDU-31 a		77	25.0	70	21.3	33	0.6	20	33	250	43	29.79			29.80	FW-15	0.00	29.75
28	1403	7	FEW-02 70 FEW-02 200 SCT-04 280	0.25	+DS-5 JDU-34 a		77	25.0	70	21.3	33	0.6	20	39	250	46	29.79						29.75
28	1419	7	FEW-02 70 FEW-02 200 SCT-04 280	1.00	DUS JDU-07		76	24.4	69	20.6	33	0.6	21	39	250	46	29.79				FW-16		29.75
28	1433	7	FEW-02 70 FEW-02 200 SCT-04 280	5.00	DUS JDU-07		73	22.8	65	18.5	33	0.6	23	37	250	45	29.79				FW-16		29.75
28	1442	7	FEW-02 70 FEW-02 200 SCT-04 280	1.00	DUS JDU-07		74	23.3	67	19.2	33	0.6	22	38	250	46	29.79				FW-16		29.75
28	1450	7	FEW-02 70 FEW-02 200 SCT-04 280	0.25	+DS-5 JDU-34 a		73	23.0	65	18.4	34	1.0	23	43	250	51	29.79				FW-16		29.75
28	1456	7	FEW-02 70 SCT-04 280	0.25	+DS-5 JDU-34 a		74	23.3	66	19.0	34	1.1	23	38	250	51	29.78			29.79	FW-15	0.00	29.74
28	1458	7	VV-09 1	0.00	+DS-5 JDU-34		74	23.3	66	19.0	34	1.1	23	40	260	51	29.79				FW-16		29.75
28	1526	7	FEW-02 70 SCT-04 280	1.50	DUS JDU-07		72	22.2	64	17.6	35	1.7	26	38	250	45	29.79				FW-16		29.75

28 1553	7	FEW-02 70	2.00	DUS	JDU-07	70	21.0	61	16.2	36	2.0	29	39	250	49	29.80				FW-16		29.76
28 1556	7	FEW-02 70	2.00	DUS	JDU-07	70	21.1	61	16.3	35	1.7	28	39	250	49	29.80	3	-0.00	29.80	FW-15	0.00	29.76
28 1558	7	FEW-02 70	1.00	DUS	JDU-07	70	21.1	61	16.3	35	1.7	28	39	250	49	29.80				FW-16		29.76
28 1605	7	FEW-02 70	0.25	+DS-5	JDU-34	70	21.1	61	16.3	35	1.7	28	38	250	52	29.80				FW-16		29.76
28 1623	7	FEW-02 70	1.00	DUS	JDU-07	70	21.1	61	16.3	35	1.7	28	41	240	48	29.80				FW-16		29.76
28 1641	7	FEW-02 70	0.25	+DS-5	JDU-34	70	21.1	61	16.3	35	1.7	28	43	250	52	29.80				FW-16		29.76
28 1649	7	FEW-02 70	2.00	DUS	JDU-07	70	21.1	61	16.3	35	1.7	28	38	250	49	29.80				FW-16		29.76
28 1656	7	FEW-02 70	2.00	DUS	JDU-07	70	21.1	62	16.5	34	1.1	27	36	250	46	29.80			29.80	FW-15	0.00	29.76
28 1717	7	FEW-02 70	0.50	DS-5	JDU-31	68	20.0	59	15.2	35	1.7	30	43	240	52	29.80				FW-16		29.76
28 1737	7	FEW-02 70	1.50	DUS	JDU-07	68	20.0	59	15.2	35	1.7	30	38	240	47	29.81				FW-16		29.77
28 1756	7	FEW-02 70	1.50	DUS	JDU-07	68	20.0	59	15.2	35	1.7	30	37	240	46	29.80			29.80	FW-15	0.00	29.76
28 1803	7	FEW-02 150	2.50	DUS	JDU-07	67	19.4	58	14.5	37	2.8	33	33	240	47	29.80				FW-16		29.76
28 1822	7	FEW-02 150	4.00	DUS	JDU-07	67	19.4	58	14.5	37	2.8	33	33	240	43	29.81				FW-16		29.77
28 1856	7	FEW-02 150	10.00			67	19.4	58	14.5	37	2.8	33	30	240	40	29.81	3	-0.01	29.82	FW-15	0.00	29.77
28 1956	7	FEW-02 150	10.00			60	15.6	52	11.0	37	2.8	42	29	240	38	29.82			29.82	FW-15	0.00	29.78
28 2056	7	FEW-02 27	10.00			59	15.0	51	10.5	37	2.8	44	26	240	33	29.82			29.82	FW-15	0.00	29.78
28 2156	7	FEW-02 200	5.00	DUS	JDU-07	59	15.0	51	10.5	35	1.7	41	29	240	38	29.83	2	-0.01	29.83	FW-15	0.00	29.79
28 2256	7	CLR-00	10.00										28	240	37	29.84			29.85	FW-15	0.00	29.80
28 2356	7	CLR-00	10.00										25	250	34	29.85			29.86	FW-15	0.00	29.81

FIGURE B-30 **IMPERIAL COUNTY AIRPORT (KIPL) QCLCD DATA**

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

National Environmental Satellite, Data, and Information Service

Elev: -58 ft. Lat: 32.8342° N Lon: -115.5786° W

Station: **IMPERIAL CO AIRPORT, CA US WBAN:03144**

Local Climatological Data **Hourly Observations** **March 2016**

Generated on 05/19/2017

National Centers for Environmental Information

151 Patton Avenue

Asheville, North Carolina 28801

Date	Time (LST)	Station Type	Sky Conditions	Visibility	Weather Type (see documentation)	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Hum %	Wind Speed (MPH)	Wind Dir (Deg)	Wind Gusts (MPH)	Station Press (inHg)	Press. Tend.	Net 3-Hr Change (inHg)	Sea Level Press. (inHg)	Report Type	Precip Total (in)	Alti-meter Setting (inHg)
						(F)	(C)	(F)	(C)	(F)	(C)											
28	0053	7	CLR:00	10.00	AU AW MW	68	20.0	59	15.0	37	2.8	32	10	270		29.88	8	+0.03	29.82	FM-15	0.00	29.82
28	0153	7	CLR:00	10.00		67	19.4	58	14.5	37	2.8	33	13	260		29.85			29.80	FM-15	0.00	29.79
28	0253	7	CLR:00	10.00		66	18.9	57	13.9	39	3.9	37	3	VRB		29.86			29.80	FM-15	0.00	29.80
28	0353	7	CLR:00	10.00		62	16.7	54	12.0	40	4.4	44	6	190		29.85	6	+0.02	29.79	FM-15	0.00	29.79
28	0453	7	CLR:00	10.00		61	16.1	56	13.1	51	10.6	70	6	170		29.85			29.79	FM-15	0.00	29.79
28	0553	7	CLR:00	10.00		64	17.8	56	13.5	48	8.9	56	3	030		29.86			29.80	FM-15	0.00	29.80
28	0653	7	CLR:00	6.00	HZ:7 FU:05 HZ:05	65	18.3	57	13.6	45	7.2	49	13	250		29.86	0	-0.00	29.80	FM-15	0.00	29.80
28	0753	7	CLR:00	10.00		68	20.0	59	15.1	48	8.9	49	9	220		29.87			29.81	FM-15	0.00	29.81
28	0853	7	CLR:00	10.00		72	22.2	62	16.8	45	7.2	38	17	260	28	29.87			29.81	FM-15	0.00	29.81
28	0953	7	CLR:00	10.00		70	21.1	61	15.9	45	7.2	41	22	270	33	29.87	0	-0.01	29.80	FM-15	0.00	29.81
28	1053	7	CLR:00	5.00	HZ:7 FU:05 HZ:05	72	22.2	62	16.8	44	6.7	37	26	290	38	29.86			29.80	FM-15	0.00	29.80
28	1153	7	CLR:00	10.00		78	25.6	69	20.7	40	4.4	26	28	250	33	29.83			29.76	FM-15	0.00	29.77
28	1253	7	CLR:00	10.00		79	26.1	71	21.7	38	3.3	23	25	250	37	29.80	8	+0.07	29.73	FM-15	0.00	29.74
28	1353	7	CLR:00	10.00		78	25.6	70	21.2	37	2.8	23	26	250	38	29.78			29.72	FM-15	0.00	29.72
28	1453	7	CLR:00	10.00		74	23.3	66	18.7	36	2.2	25	22	260	34	29.79			29.72	FM-15	0.00	29.73
28	1553	7	FEW:02 19	6.00	HZ:7 FU:05 HZ:05	70	21.1	61	16.1	38	3.3	31	30	250	41	29.78	6	+0.01	29.72	FM-15	0.00	29.72
28	1653	7	FEW:02 14	6.00	HZ:7 FU:05 HZ:05	67	19.4	58	14.5	36	2.2	32	29	250	40	29.79			29.72	FM-15	0.00	29.73
28	1714	7	BKN:07 16	3.00	HZ:7 FU:05 HZ:05	66	18.9	57	14.0	36	2.2	33	31	250	41	29.79				FM-16		29.73
28	1724	7	BKN:07 14	3.00	HZ:7 FU:05 HZ:05	65	18.3	56	13.4	37	2.8	36	36	250	44	29.79				FM-16		29.73
28	1733	7	OVC:08 12	2.50	HZ:7 FU:05 HZ:05	64	17.8	55	12.9	37	2.8	37	33	250	45	29.78				FM-16		29.72
28	1751	6	BKN:07 12	3.00	HZ:7 HZ:05	63	17.0	54	12.4	37	3.0	39	33	250	47	29.79				FM-16		29.73
28	1753	7	BKN:07 12	3.00	HZ:7 FU:05 HZ:05	63	17.2	54	12.4	37	2.8	38	32	250	47	29.79			29.72	FM-15	0.00	29.73
28	1800	7	FEW:02 12	4.00	HZ:7 FU:05 HZ:05	63	17.2	54	12.4	37	2.8	38	33	250	44	29.79				FM-16		29.73
28	1853	7	CLR:00	8.00		62	16.7	53	11.9	37	2.8	40	32	250	41	29.79	2	-0.01	29.73	FM-15	0.00	29.73
28	1953	7	CLR:00	10.00		61	16.1	53	11.4	37	2.8	41	33	250	46	29.80			29.74	FM-15	0.00	29.74
28	2053	7														29.80				FM-15	0.00	29.74
28	2153	7	CLR:00	10.00		59	15.0	51	10.5	37	2.8	44	32s	250	51	29.81	1	-0.02	29.75	FM-15	0.00	29.75
28	2253	7	CLR:00	10.00		59	15.0	51	10.5	37	2.8	44	39	240	46	29.81			29.75	FM-15	0.00	29.75
28	2353	7	CLR:00	10.00		58	14.4	50	10.1	37	2.8	46	28	250	34	29.83			29.77	FM-15	0.00	29.77